

Work Order ID 62375

Tuesday, September 28, 2010 1:57:22 PM



Page 1

Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 9/28/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 10/12/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

[Signature]

Date:

10-9-28

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2580	Rev D

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

N/A

Ch 10/11/03

110

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

DP

10-10-4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
Skidtubes									
Skidtubes	Memo	0.00							
	1- Deburr ends and remove marks bending marks								
	2- C'sink holes as per dwg without cutting fluid								
	3- Prepare tube for welding, remove alodine as required.								
130	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control									

1 — BE10/10/06

Sid10106

(X)

W/O:		WORK ORDER CHANGES					
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Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

0.00

Skidtubes

Skidtubes

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R□□□ Aluminum Rod

2-Prep per QSI 005 and weld crossbolt spacers D2579 as per Dwg. D2580, QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R□□□ Aluminum Rod

3-Grind welds as per Dwg D2580 Grind flush ridge made from bending

4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64", adjust stopper not to hit web. Deburr

5-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Deburr holes

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

BE 10/10/06

BE 10/10/06

BE 10/10/07

Dart Aerospace Ltd

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

8/10/10/07

Quality Control

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

8/10/10/07



Quality Control

170

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

PR 10-10-13



Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

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Run Start
Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180



Powdercoat

Powder Coating

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

M1152011

0.00

10-10-13

Memo

0.00

START TIME: 10:30

OVEN TEMPERATURE: 320°

FINISH TIME: 11:00

190



QC

Quality Control

QC3- Inspect Part Finish

0.00

10/10/13

Memo

0.00

1 /

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

200

0.00



HandFinish

0.00

=) Jd 10/10/13

Y1

Ø

Hand Finishing

Memo

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates
A/R ☐ ☐ ☐ Sikaflex-291 ☐ M11514 ☐ ☐
Sikaflex expire date: 11/06

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive
A/R ☐ ☐ ☐ Sikaflex-291 ☐ M11514 ☐ ☐
Sikaflex expire date: 11/05

5-Wing Walk as per Dwg D2580 and QSI 005 4.4
Batch: M115028

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Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

210



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0.00

8/10/10/14

Memo

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

②

220



Packaging

Packaging

Packaging

0.00

Memo

Identify and pack for shipping as per PPPD205-634-041

Location:

PPP Rev:

PPD61956

0.00

C 10/11/3 ①

230



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

ch 10/11/03 ②
UMF
10-11-3

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Start Date: 9/28/2010

Required Date: 10/12/2010

Start Qty: 1.00


Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ
 IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD
 IPP Rev. O 06.02.28 Added paperwork EC
 IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2580-1  205 Skidtube bent detail		Manufactured	No			110	Each	9.0000	1	1			

Location	Loc Qty	Loc Code
LG	8	
61805	2	
61867	2	
62047	2	
62048	2	
ST046	1	
59856	1	

① DP 10-10-4

D2576-3  Step (maching detail)		Manufactured	No			140	Each	72.0000	1	1			
--	--	--------------	----	--	--	-----	------	---------	---	---	--	--	--

Location	Loc Qty	Loc Code
LG	72	
46661	24	
52215	48	

1 BE 10-10-06

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Start Date: 9/28/2010

Required Date: 10/12/2010

Start Qty: 1.00

Required Qty: 1.00

D2579 Manufactured No 140 Each 224.0000 20 20



Crossbolt Spacer



Location Loc Qty Loc Code

LG	224	
57052	5	
57348	4	
58433	2	
59113	7	
60845	37	
61199	169	

20 BE 10/10/06

D2855 Manufactured No 200 Each 65.0000 1 1



Cap



Location Loc Qty Loc Code

FP6	1	
56613	1	
ST026	64	
50513	1	
50770	28	
51539	2	
53791	33	

10/10/13

AN3-5A Purchased No 200 Each 1,505.000 2 2



Bolt



Location Loc Qty Loc Code

ST350	1505	
105057	505	
115016	500	
115371	500	

10/10/13

V2

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Start Date: 9/28/2010

Required Date: 10/12/2010

Start Qty: 1.00

Required Qty: 1.00

AN960JD10L NAS1149D0332J Purchased No

200 Each 0.0000 2 2



Washer

(11109053)



x2 all 10/10/13

ALS7-1032-130 Purchased No

200 Each 1,796.000 50 50



all 10/10/13

Insert

Location

Loc Qty

Loc Code

FP 115079

779 779

x1114723

x50

ST282

1017

113238

17

115502

500

115581

500

AN3C4A Purchased No

200 Each 2,108.000 50 50



all 10/10/13

BOLT

Location

Loc Qty

Loc Code

ST245

38

109061

11

110139

27

ST303

42

115438

42

ST350

2028

114108

14

114416

12

114523

2

115300

1000

115589

1000

x50

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Start Qty: 1.00

Required Qty: 1.00

AN960C10L NAS1149C0332 Purchased No

200 Each 29.0000 50 50



washer

115816



x50 10/10/13

Location

Loc Qty

Loc Code

ST245

29

107534

29

D3566-13 Manufactured No

200 Each 39.0000 1



Gasket



1 10/10/13

Location

Loc Qty

Loc Code

FP012

39

59661

5

60209

8

61996

26

D3566-5 Manufactured No

200 Each 14.0000 1



Gasket



1 10/10/12

Location

Loc Qty

Loc Code

FP

14

60869

14

D3566-1 Manufactured No

200 Each 31.0000 2



Gasket



2 10/10/13

Location

Loc Qty

Loc Code

FP015

31

57715

2

60202

10

61656

6

61992

13

x2

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Start Qty: 1.00



Required Qty: 1.00

D3564-11 Manufactured No 200 Each 6.0000 1 1

 Wearshoe  yl 10/10/13

Location	Loc Qty	Loc Code
FP019	6	1361708
60302	6	

D3564-13 Manufactured No 200 Each 12.0000 1 1

 Wearshoe  yl 10/10/13

Location	Loc Qty	Loc Code
FP17	12	
60862	12	

D3564-9 Manufactured No 200 Each 23.0000 1 1

 Wearshoe  yl 10/10/13

Location	Loc Qty	Loc Code
FP	1	
55334	1	
FP019	22	
60236	9	
61709	13	

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Required Date: 10/12/2010

Start Qty: 1.00

Required Qty: 1.00

D3564-5

Manufactured No

200

Each

14.0000

1

1



Wearshoe



9/10/10/11/12

Location

Loc Qty

Loc Code

FG

1

34806

1

FP19

8

57525

1

58709

1

61699

6

FP-19

5

60868

5

yl

D2594-3

Manufactured No

200

Each

1,011.000

16

16



O-Ring, 205 Skidtube



9/10/10/11/12

Location

Loc Qty

Loc Code

FP

43

55546

19

58191

12

59358

12

fpa

968

61762

968

B61937

x16

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Start Qty: 1.00

Required Qty: 1.00

D2594-1

Manufactured No

200

Each

331.0000

16

16



Plug, 205 Skidtube



10/10/13

Location

Loc Qty

Loc Code

FP

183

42807

112

55002

71

FP14

148

58434

15

59110

13

61932

120

X/b

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DART

DESIGN #	DRAWN BY RH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 #

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

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WITHOUT NOTICE
WORK ORDER
NO. 62373

PS10-92

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Diagram illustrating the underside of the D2576-3 step, showing the location of the grinding ridge and the grinding flush areas. The diagram includes labels for the GRIND FLUSH (4 PLACES), GRIND FLUSH, D2576-3 STEP, LOCATION RIDGE ON UNDERSIDE OF D2576, and GRIND FLUSH.

Diagram illustrating the assembly of a circular component, likely a cap or cover, showing the following parts and dimensions:

- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)
- #0.208
- SEAL WITH SIKAFLEX-241/-291
- AN3-5A BOLT (1)
- AN960/D10L WASHER (1) (2 PLACES)
- D2855 CAP
- 0.40

D2579 SPACER
 D2596 WEB (REF)
 AL57-1032-130 (REF)
 (TYP 50 PLACES)
 5
 AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:
 1. CHAMFER HOLE 0.050 X 45°
 2. INSERT D2579 SPACER (20 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. C'BORE D2579 SPACER TO Ø.437 X 1.00 DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

37.50
DISTANCE TO AFT END
OF D2598 WEB

3
7

1.750

1.750

Ø0.508 (TYP.)
(40 PLACES)

REFER TO DETAIL A

8.750

17.375

26.000

34.188


57.313 (REF)
7 EQUAL SPACES
8.188 PITCH

38.0

91.500

190.0
(D2500-1)

[illegible]

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	CHECKED	APPROVED		DRAWING NO.	REV. D
	DATE			D2580	SHEET 2 OF 3
	07.02.27			TITLE	SCALE
			205 SKIDTUBE ASSEMBLY	1:24	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

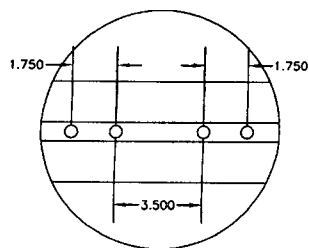
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

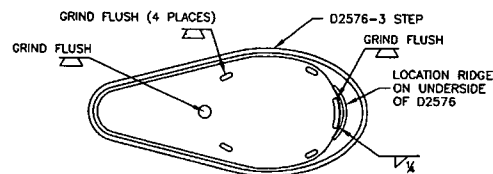
NOTE: Date & initial all entries

DETAIL E
SCALE 5:24

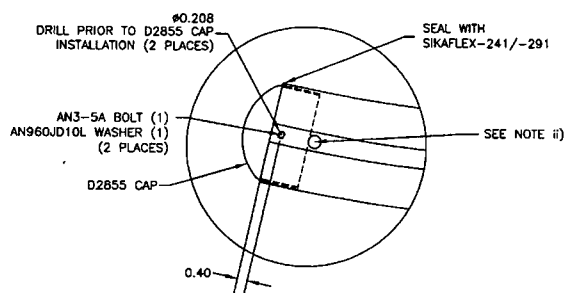


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07 Dec 88

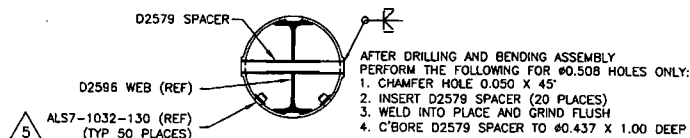
DETAIL F
SCALE 5:24



DETAIL G
SCALE 5:24



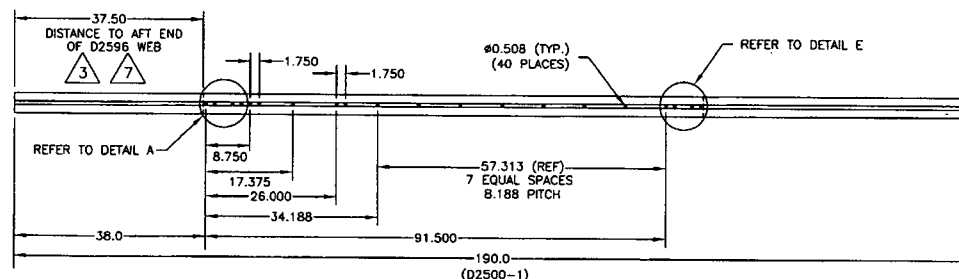
SECTION H-H
SCALE 5:24



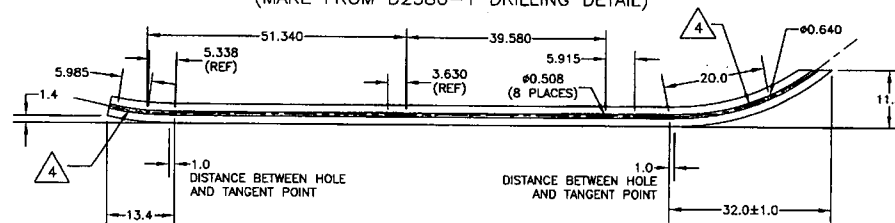
D2580-045 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

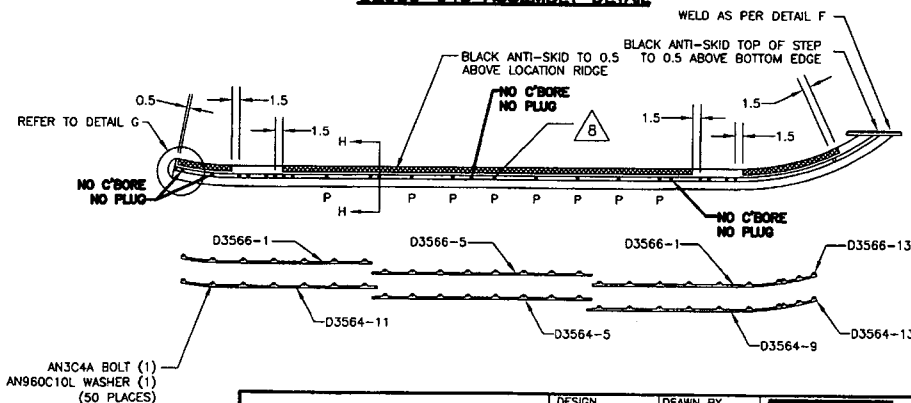
D2580-1 DRILLING DETAIL



D2580-5 BENDING AND CUTTING DETAIL
(MAKE FROM D2580-1 DRILLING DETAIL)



D2580-045 ASSEMBLY DETAIL



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DESIGN RH	DRAWN BY RH	DART	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED H	APPROVED H	DRAWING NO. D2580	REV. 0
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SHEET 3 OF 3 SCALE 1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 240

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 62176
Part number: D205-634-041
Description: 205 skid tube
Welding Process: Tig[☒] Mig[]
Base material: Aluminium
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier P. P. Date of Test Coupon 10.09.30
Welder Barclay Elliott Date of Test Coupon 10.09.30

The above named individual is qualified in accordance with AWS D17.1.2001 to weld